IS 8430 (1977): Nylon Fabrics for Inflatable Equipment [TXD 33: Industrial Fabrics]

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Indian Standard

SPECIFICATION FOR NYLON FABRICS FOR INFLATABLE EQUIPMENT

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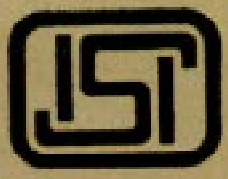

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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Indian Standard

SPECIFICATION FOR NYLON FABRICS FOR INFLATABLE EQUIPMENT

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SPECIFICATION FOR NYLON FABRICS FOR INFLATABLE EQUIPMENT

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 16 May 1977, after the draft finalized by the Silk, Man-Made Fibre and Products Sectional Committee had been approved by the Textile Division Council.

0.2 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements of seven varieties of nylon fabric. The fabric is suitable for the manufacture of inflatable liferafts and similar equipment generally after proofing with elastomers.

2. MANUFACTURE

2.1 Yarn — Continuous filament nylon, type 6 yarn shall normally be used in the manufacture of the cloth. It shall have nominal spinners' twist only, unless otherwise required specifically for the manufacture.

2.2 Cloth — The cloth shall be woven uniformly and evenly. The selvedges shall have the same tension as the remainder of the fabric and shall not be unduly thicker than the fabric. The selvedges shall not fold on themselves nor present a corded edge effect. The fabric, if required, shall be scoured. Unless otherwise specified, the fabric shall be heat-set.

3. REQUIREMENTS

3.1 Constructional Particulars — The cloth shall conform to the constructional particulars given in Table 1.

3.2 Other Requirements — The cloth shall conform to the requirements given in Table 2.

*Rules for rounding off numerical values (*revised*).

TABLE 1 CONSTIRUCTONAL PARTICULARS OF NYLON FABRICS

(*Clause* 3.1)

Variety No.	Approximate Count of Warp and Weft Yarn, Tex (or Denier) (*see* Note)	Ends or Picks/cm, *Min*	Mass, *Max*	Breaking Load on 5·0 × 20 cm Strips, Warpway and Weftway, *Min*	Length	Width	Weave
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			g/m^2	N* (kg)	m	cm	
1	5·0 tex (or 45 d)	40	58	440 (45)	↑	↑	Plain
2	11·1 tex (or 100 d)	28	74	800 (82)			Plain
3	23 3 tex (or 210 d)	18	95	1 100 (112)			Plain
4	23 3 tex (or 210 d)	25	136	1 550 (158)			Plain or 2/2 twill
5	46·7 tex (or 420 d)	16	168	2 000 (204)			Plain
6	93·3 tex (or 840 d)	10	280	2 600 (265)			Plain or rip-stop
7	93·3 tex (or 840 d)	18	400	5 400 (550)	↓	↓	Plain or matt
					— 100 or as ordered —	← As ordered ± 1·0 cm →	
Methods of Test	—	IS : 1963-1969†	IS : 1964-1970‡	IS : 1969-1968§	IS : 1954-1969‖		Visual

Note — The count of yarn is for guidance of manufacturers only.

*1 Newton is approximately equal to 0·1 kg.

†Methods for determination of threads per decimetre in woven fabrics (*first revision*).

‡Methods for determination of weight per square metre and weight per linear metre of fabrics (*first revision*).

§Methods for determination of breaking load and elongation at break of woven textile fabrics (*first revision*).

‖Methods for determination of length and width of fabrics (*first revision*).

TABLE 2 CHEMICAL REQUIREMENTS OF NYLON FABRICS

(*Clause* 3.2)

Sl No.	Characteristic	Requirement	Method of Test
(1)	(2)	(3)	(4)
i)	Shrinkage, percent	2 0 *Max* for plain weave fabrics 4·0 *Max* for other weave fabrics	On heating for 60 minutes at 150 ± 5°C, and then cooling at 20°C for 60 minutes at 65 percent RH
ii)	Conductivity	150 micro-ohms, *Max*	IS : 4420-1967*
iii)	*p*H value	5·0 to 8·0	IS : 1390-1961†
iv)	Water soluble chlorides as Nacl, percent	0·1, *Max*	IS : 4202-1967‡
v)	Water soluble sulphates as Na_2SO_4, percent	0 25, *Max*	IS : 4203-1967§
vi)	Colour fastness to:		
	a) Light	4 or better	IS : 2454-1967‖
	b) Sea water	4 or better	IS : 690-1956¶

*Methods for determination of conductivity of aqueous and organic extracts of textile materials.

†Methods for determination of *p*H value of aqueous extracts of textile materials.

‡Methods for determination of chloride content of textile materials.

§Methods for determination of sulphate content in textile materials.

‖Methods for determination of colour fastness of textile materials to artificial light (xenon lamp).

¶Methods for determination of colour fastness of textile materials to sea water.

4. MARKING

4.1 Each roll of fabric shall be marked with the following:

a) Name of the material;

b) Manufacturer's name, initials or trade-mark, if any;

c) Length × width of roll; and

d) Date of manufacture.

4.1.1 The fabric may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5. PACKING

5.1 The fabric shall be packed in rolled form in accordance with the provisions of IS : 2195-1964* or IS : 2194-1963†, as the case may be.

6. SAMPLING

6.1 Lot — The quantity of nylon fabric delivered to a buyer against a despatch note shall constitute a lot.

NOTE — The sampling plan given below shall give desired protection to the buyer and the seller provided the lot submitted for inspection is homogeneous. To ensure homogeneity of the lot, it is recommended that the manufacturers should follow the methods given in IS : 397 (Part I)-1972‡ and IS : 397 (Part II)-1975§.

6.2 The conformity of the lot to the requirements of this standard shall be adjudged on the basis of the tests carried out on the samples selected from it.

6.3 Unless otherwise agreed to between the buyer and the seller, the number of rolls or pieces to be selected from a lot shall be in accordance with col 1 and 2 of Table 3.

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*Code for inland packaging of man-made fibre fabrics and man-made fibre yarn.

†Code for seaworthy packaging of man-made fibre fabrics.

‡Method for statistical quality control during production : Part I Control charts for variables (*first revision*).

§Method for statistical quality control during production : Part II Control charts for attributes and count of defects (*first revision*).

TABLE 3 SAMPLE SIZE AND CRITERIA FOR CONFORMITY

(*Clause* 6.3)

LOT SIZE	SAMPLE SIZE	PERMISSIBLE NUMBER OF NON-CONFORMING ROLLS	SUB-SAMPLE SIZE
(1)	(2)	(3)	(4)
Up to 50	8	0	3
51 to 100	13	0	4
101 to 150	20	1	5
151 to 300	32	1	6
301 to 500	50	2	7
500 and above	80	3	10

6.4 Number of Tests and Criteria for Conformity — The number of tests and criteria for conformity for various characteristics shall be as follows:

Sl No.	*Characteristic*	*No. of Tests*	*Criteria for Conformity*
i)	Ends, picks and width	According to col 2 of Table 3	Number of non-conforming rolls or pieces not to exceed the corresponding number given in col 3 of Table 3
ii)	Length	According to col 2 of Table 3	The value obtained for each piece shall be compared with its specified, declared or marked value. The mean percentage of deficiency in length, if any, shall be determined and made applicable to the lot
iii)	Mass	According to col 4 of Table 3	The values of the expressions $\overline{X} + 0{\cdot}5\,R \leqslant$ specification limits
iv)	Breaking load	According to col 4 of Table 3	$\overline{X} - 0{\cdot}5\,R \geqslant$ specification limit

Sl No.	*Characteristic*	*No. of Tests*	*Criteria for Conformity*
v)	Shrinkage, conductivity, water soluble chlorides and water soluble sulphates	According to col 4 of Table 3	$\overline{X} + 0{\cdot}5\ R \leqslant$ specified limit
vi)	*p*H value and colour fastness	According to col 4 of Table 3	All the test specimens meet the necessary requirements

where

$\overline{X}$ = average value obtained by dividing the sum of the observed values by the number of test results; and

R = range, that is, difference between the maximum and minimum in a set of observed values.